```
att ccg gct tct atg gag cac tcg gga cca ggt ccg cgg cgc gcg cac tcg ctc

gct cgc cgc ccc cca gcc agc tct cgc ttc cgc gcc gcc agc cgc gcc ccg cgc

ctc ctc gct gca ccc cgc gac cta gag cca aga aag ttt gtg tgg cga gtg agg

gcc gga gag gag agc gcg ccc gcg gag tgc cgt cca gac cag cgc ggc ccc ggc

gga gag ggg agc gcc ccg agc cca ggc ggc ggc ggc tag ccc gag tcc gcg acc
                        -26                     -20
                        Met Gly Ala Ala Ala Arg Ser Leu Pro Leu Ala Phe
ccc gcc cct ccg ccc gcc atg ggc gcc gcc gcc cgc agc ctg ccg ctc gcg ttc
                -10                                 -1  1
Cys Leu Leu Leu Leu Gly Thr Leu Leu Pro Arg Ala Asp Ala Cys Ser Cys Ser
tgc ctc ctg ctg ctg ggg acg ctg ctc ccc cgg gcc gac gcc tgc agc tgc tcc
                    10                                  20
Pro Val His Pro Gln Gln Ala Phe Cys Asn Ala Asp Ile Val Ile Arg Ala Lys
ccg gtg cac ccg caa cag gcg ttt tgc aat gca gac ata gtg atc agg gcc aaa
                            30                                      40
Ala Val Asn Lys Lys Glu Val Asp Ser Gly Asn Asp Ile Tyr Gly Asn Pro Ile
gca gtc aat aag aag gag gtg gac tct ggc aac gac atc tac ggc aac ccc atc
                                    50
Lys Arg Ile Gln Tyr Glu Ile Lys Gln Ile Lys Met Phe Lys Gly Pro Asp Gln
aag cgg att cag tat gag atc aag cag ata aag atg ttc aag gga cct gat cag
    60                                      70
Asp Ile Glu Phe Ile Tyr Thr Ala Pro Ala Ala Ala Val Cys Gly Val Ser Leu
gac ata gag ttt atc tac aca gcc ccc gcc gct gcc gtg tgt ggg gtc tcg ctg
            80                                      90
Asp Ile Gly Gly Lys Lys Glu Tyr Leu Ile Ala Gly Lys Ala Glu Gly Asn Gly
gac att gga gga aag aag gag tat ctc att gca ggg aag gcc gag ggg aat ggc
                    100                                     110
Asn Met His Ile Thr Leu Cys Asp Phe Ile Val Pro Trp Asp Thr Leu Ser Ala
aat atg cat atc acc ctc tgt gac ttc atc gtg ccc tgg gac acc ctg agt gcc
                            120                                     130
Thr Gln Lys Lys Ser Leu Asn His Arg Tyr Gln Met Gly Cys Glu Cys Lys Ile
acc cag aag aag agc ctg aac cac agg tac cag atg ggc tgt gag tgc aag atc
                                    140
Thr Arg Cys Pro Met Ile Pro Cys Tyr Ile Ser Ser Pro Asp Glu Cys Leu Trp
act cga tgc ccc atg atc cca tgc tac atc tcc tct ccg gac gag tgc ctc tgg
    150                                     160
Met Asp Trp Val Thr Glu Lys Asn Ile Asn Gly His Gln Ala Lys Phe Phe Ala
atg gac tgg gtc acg gag aag aac atc aac gga cac cag gcc aag ttc ttc gcc
            170                                     180
Cys Ile Lys Arg Ser Asp Gly Ser Cys Ala Trp Tyr Arg Gly Ala Ala Pro Pro
tgc atc aag aga agc gac ggc tcc tgc gcc tgg tac cgc gga gca gca ccc ccc
                    190             194
Lys Gln Glu Phe Leu Asp Ile Glu Asp Pro
aag cag gag ttt ctg gac atc gag gac ccg taa gca ggc cac cag gac tcc tgg

ggc caa ttg aca gtg tcc aag agt tca gac tgg tcc agc tcc gac atc cct tcc

tgg aca cag cat gaa taa a
```

FIG. 1

```
att ccg gcc cgc cgt ccc cca ccc cgc cgc ccc gcc cgg cga att gcg ccc cgc

gcc cct ccc ctc gcg ccc ccg aga caa aga gga gag aaa gtt tgc gcg gcc gag

cgg ggc agg tga gga ggg tga gcc gcg cgg gag ggg ccc gcc tcg gcc ccg gct

cag ccc ccg ccc gcg ccc cca gcc cgc cgc cgc gag cag cgc ccg gac ccc cca
                                                -26
                                                Met Gly Ala Ala Ala Arg
gcg gcg gcc ccc gcc cgc cca gcc ccc cgg ccc gcc atg ggc gcc gcg gcc cgc
-20                                     -10
Thr Leu Arg Leu Ala Leu Gly Leu Leu Leu Leu Ala Thr Leu Leu Arg Pro Ala
acc ctg cgg ctg gcg ctc ggc ctc ctg ctg ctg gcg acg ctg ctt cgc ccg gcc
    -1  1                                   10
Asp Ala Cys Ser Cys Ser Pro Val His Pro Gln Gln ala Phe Cys Asn Ala Asp
gac gcc tgc agc tgc tcc ccg gtg cac ccg caa cag gcg ttt tgc aat gca gat
            20                                      30
Val Val Ile Arg Ala Lys Ala Val Ser Glu Lys Glu Val Asp Ser Gly Asn Asp
gta gtg atc agg gcc aaa gcg gtc agt gag aag gaa gtg gac tct gga aac gac
                    40                                      50
Ile Tyr Gly Asn Pro Ile Lys Arg Ile Gln Tyr Glu Ile Lys Gln Ile Lys Met
att tat ggc aac cct atc aag agg atc cag tat gag atc aag cag ata aag atg
                            60                                      70
Phe Lys Gly Pro Glu Lys Asp Ile Glu Phe Ile Tyr Thr Ala Pro Ser Ser Ala
ttc aaa ggg cct gag aag gat ata gag ttt atc tac acg gcc ccc tcc tcg gca
                                    80
Val Cys Gly Val Ser Leu Asp Val Gly Gly Lys Lys Glu Tyr Leu Ile Ala Gly
gtg tgt ggg gtc tcg ctg gac gtt gga gga aag aag gaa tat ctc att gca gga
    90                                      100
Lys Ala Glu Gly Asp Gly Lys Met His Ile Thr Leu Cys Asp Phe Ile Val Pro
aag gcc gag ggg gac ggc aag atg cac atc acc ctc tgt gac ttc atc gtg ccc
            110                                     120
Trp Asp Thr Leu Ser Thr Thr Gln Lys Lys Ser Leu Asn His Arg Tyr Gln Met
tgg gac acc ctg agc acc acc cag aag aag agc ctg aac cac agg tac cag atg
                    130                                     140
Gly Cys Glu Cys Lys Ile Thr Arg Cys Pro Met Ile Pro Cys Tyr Ile Ser Ser
ggc tgc gag tgc aag atc acg cgc tgc ccc atg atc ccg tgc tac atc tcc tcc
                            150                                     160
Pro Asp Glu Cys Leu Trp Met Asp Trp Val Thr Glu Lys Asn Ile Asn Gly His
ccg gac gag tgc ctc tgg atg gac tgg gtc aca gag aag aac atc aac ggg cac
                                    170
Gln Ala Lys Phe Phe Ala Cys Ile Lys Arg Ser Asp Gly Ser Cys Ala Trp Tyr
cag gcc aag ttc ttc gcc tgc atc aag aga agt gac ggc tcc tgt gcg tgg tac
    180                                     190             194
Arg Gly Ala Ala Pro Pro Lys Gln Glu Phe Leu Asp Ile Glu Asp Pro
cgc ggc gcg gcg ccc ccc aag cag gag ttt ctc gac atc gag gac cca taa gca

ggc ctc caa cgc ccc tgt ggc caa ctg caa aaa aag cct cca agg gtt tcg act

ggt cca gct ctg aca tcc ctt cct gga aac agc atg aat aaa aca ctc atc ccc

gga att c
```

FIG. 2

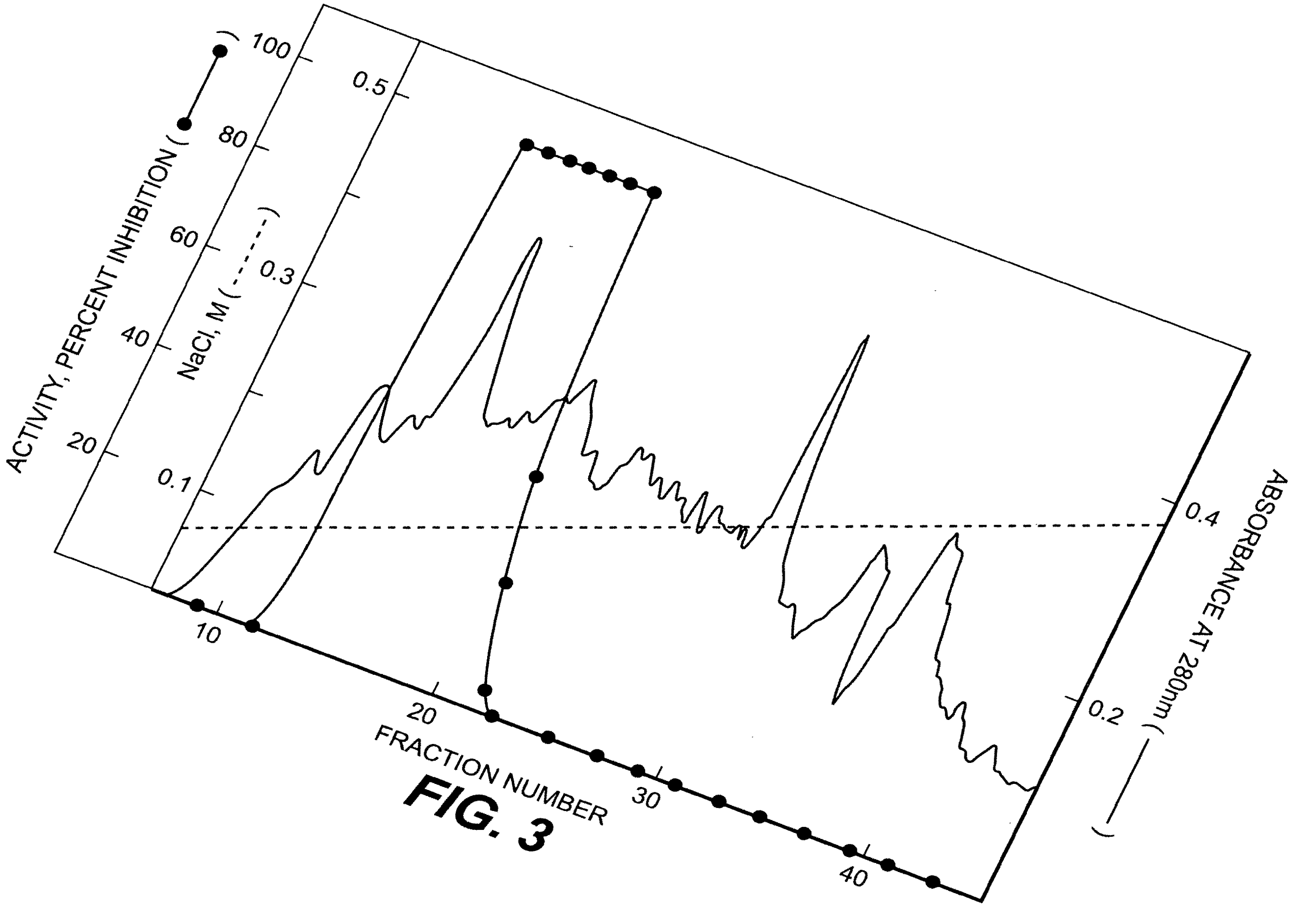
ACTIVITY, PERCENT INHIBITION (●—●)
20
40
60
80
100
NaCl, M (- - - - -)
0.1
0.3
0.5
ABSORBANCE AT 280nm (———)
0.4
0.2
10
20
30
40
FRACTION NUMBER

FIG. 3

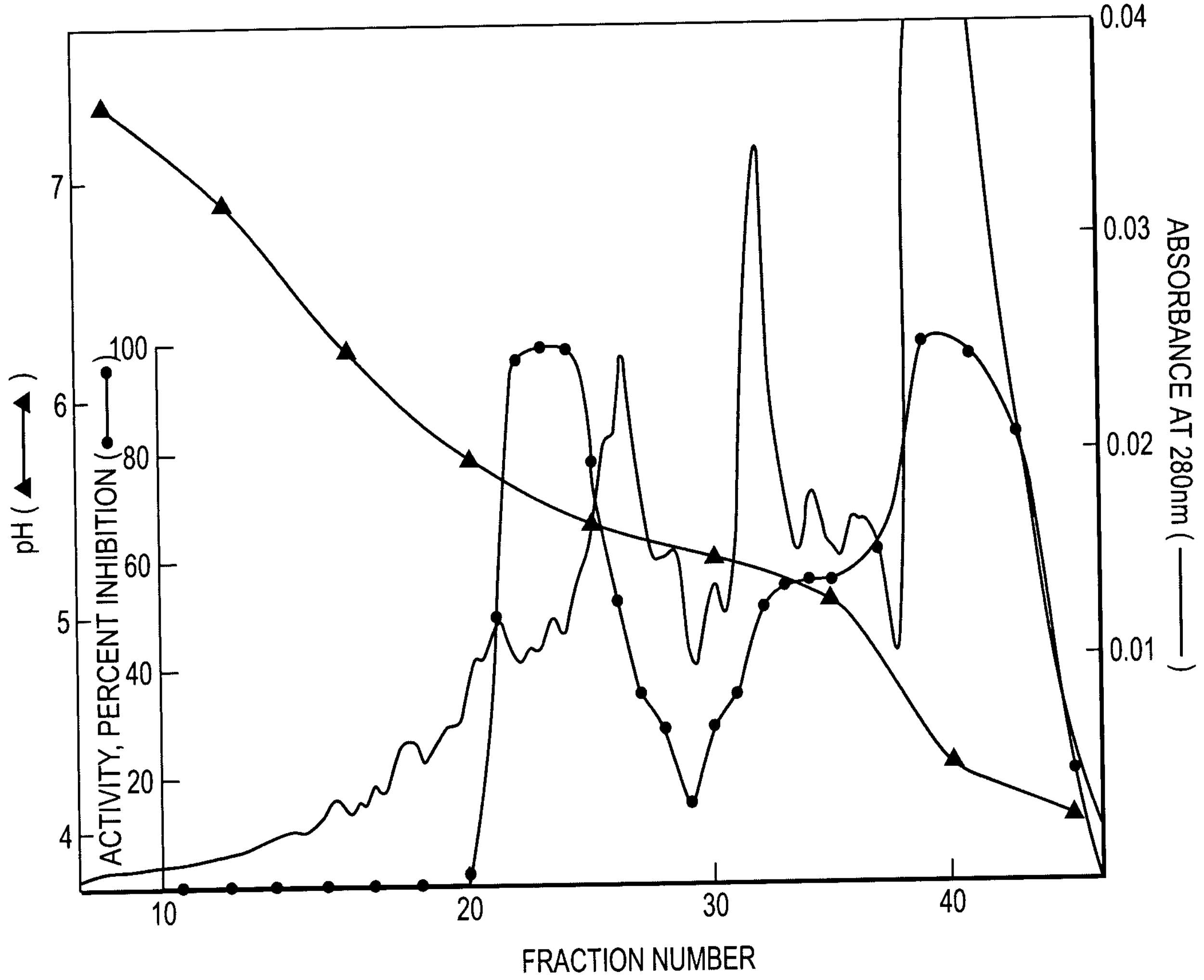
pH (▲—▲)
7
6
5
4
ACTIVITY, PERCENT INHIBITION (●—●)
100
80
60
40
20
ABSORBANCE AT 280nm (——)
0.04
0.03
0.02
0.01
10
20
30
40
FRACTION NUMBER

FIG. 4

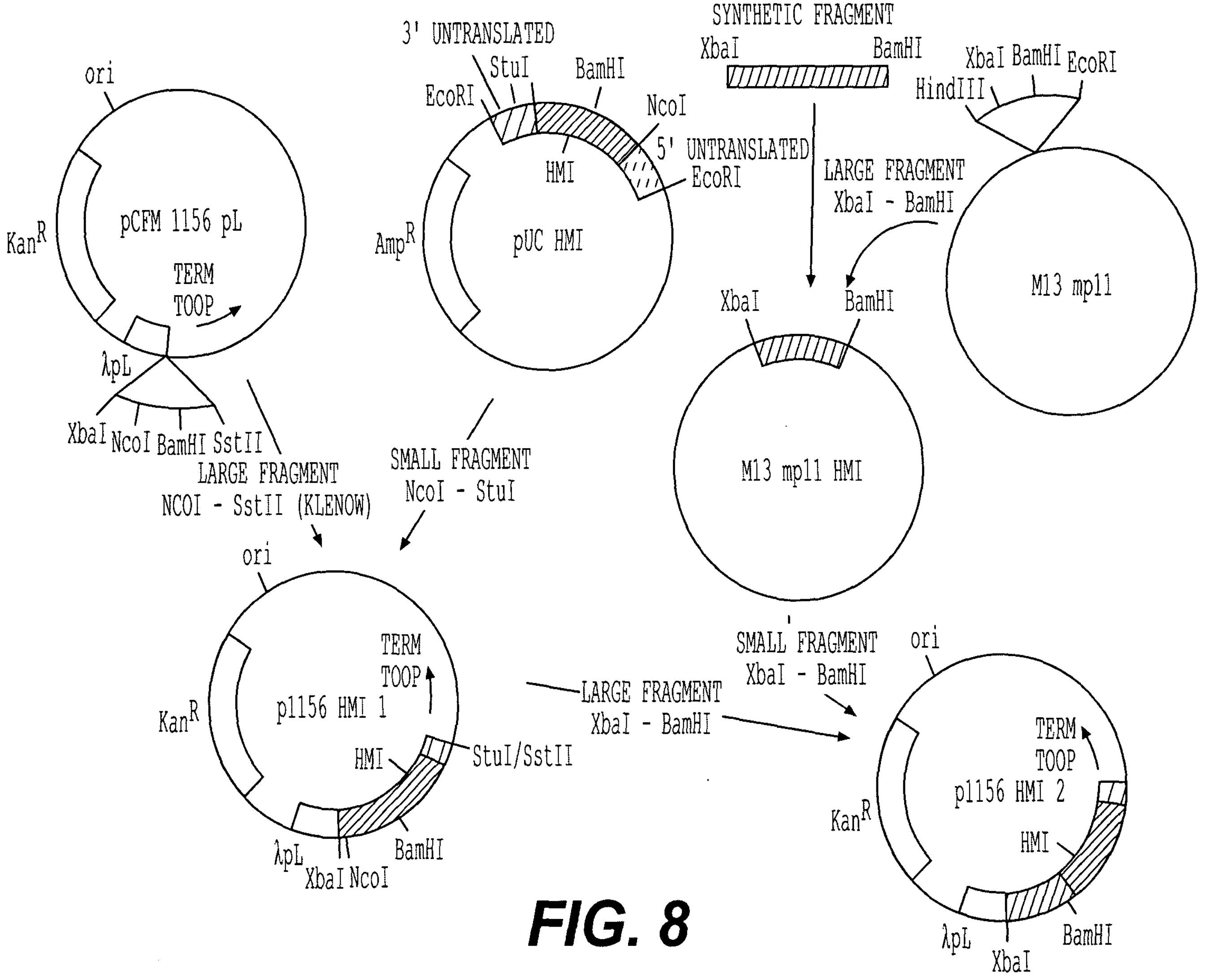
ori
Kan^R
pCFM 1156 pL
TERM
TOOP
λpL
XbaI
NcoI
BamHI
SstII
LARGE FRAGMENT
NCOI - SstII (KLENOW)
3' UNTRANSLATED
StuI
BamHI
EcoRI
NcoI
HMI
5' UNTRANSLATED
EcoRI
Amp^R
pUC HMI
SMALL FRAGMENT
NcoI - StuI
SYNTHETIC FRAGMENT
XbaI
BamHI
LARGE FRAGMENT
XbaI - BamHI
XbaI
BamHI
EcoRI
HindIII
M13 mp11
XbaI
BamHI
M13 mp11 HMI
ori
TERM
TOOP
Kan^R
p1156 HMI 1
HMI
StuI/SstII
λpL
XbaI
NcoI
BamHI
LARGE FRAGMENT
XbaI - BamHI
SMALL FRAGMENT
XbaI - BamHI
ori
TERM
TOOP
p1156 HMI 2
Kan^R
HMI
λpL
XbaI
BamHI

FIG. 8

```
        10         20         30         40         50         60
CTAGAAAAAA CCAAGGAGGT AATAAATAAT GTGTTCTTGT TCTCCTGTAC ACCCTCAACA
    TTTTTT GGTTCCTCCA TTATTTATTA CACAAGAACA AGAGGACATG TGGGAGTTGT

        70         80         90        100        110        120
AGCTTTTTGT AACGCTGATG TAGTTATCCG TGCAAAAGCT GTTTCTGAAA AAGAAGTTGA
TCGAAAAACA TTGCGACTAC ATCAATAGGC ACGTTTTCGA CAAAGACTTT TTCTTCAACT

       130        140        150        160
TTCTGGTAAC GACATCTACG GTAACCCGAT CAAAAG
AAGACCATTG CTGTAGATGC CATTGGGCTA GTTTTCCTAG
```

FIG. 9

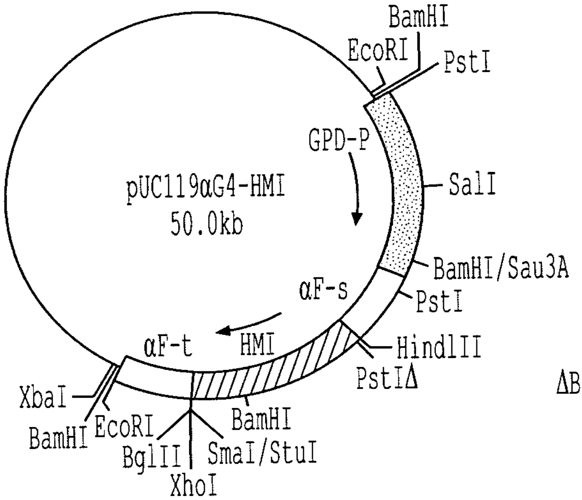
pUC119αG4-HMI
50.0kb
BamHI
EcoRI
PstI
GPD-P
SalI
BamHI/Sau3A
αF-s
PstI
HindIII
PstIΔ
αF-t
HMI
XbaI
BamHI
EcoRI
BglII
XhoI
SmaI/StuI
BamHI

FIG. 10A

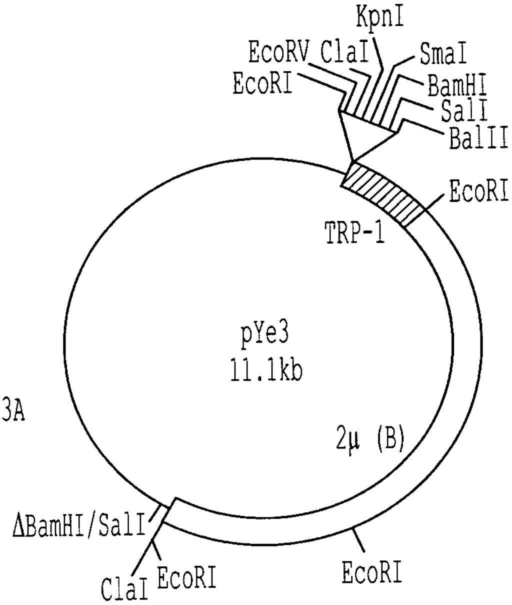
KpnI
EcoRV
ClaI
SmaI
EcoRI
BamHI
SalI
BalII
EcoRI
TRP-1
pYe3
11.1kb
2μ (B)
ΔBamHI/SalI
ClaI
EcoRI
EcoRI

FIG. 10B

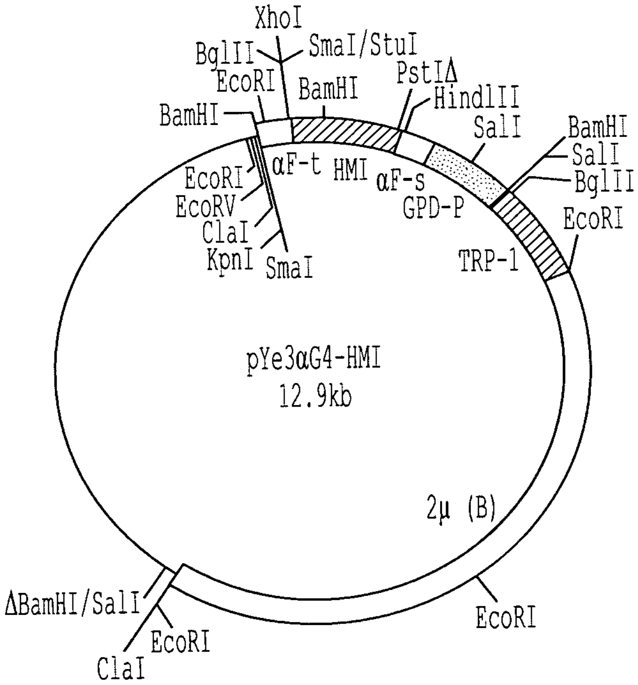
XhoI
BglII
SmaI/StuI
EcoRI
PstIΔ
BamHI
HindIII
BamHI
SalI
BamHI
SalI
BglII
αF-t
HMI
αF-s
GPD-P
EcoRI
EcoRV
ClaI
KpnI
SmaI
EcoRI
TRP-1
pYe3αG4-HMI
12.9kb
2μ (B)
ΔBamHI/SalI
EcoRI
ClaI
EcoRI

FIG. 10C

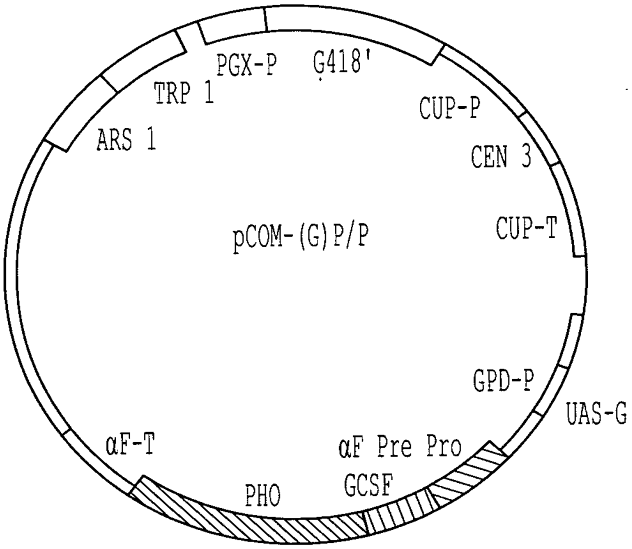
PGX-P
G418'
TRP 1
ARS 1
CUP-P
CEN 3
CUP-T
pCOM-(G)P/P
GPD-P
UAS-G
αF-T
αF Pre Pro
GCSF
PHO

FIG. 11

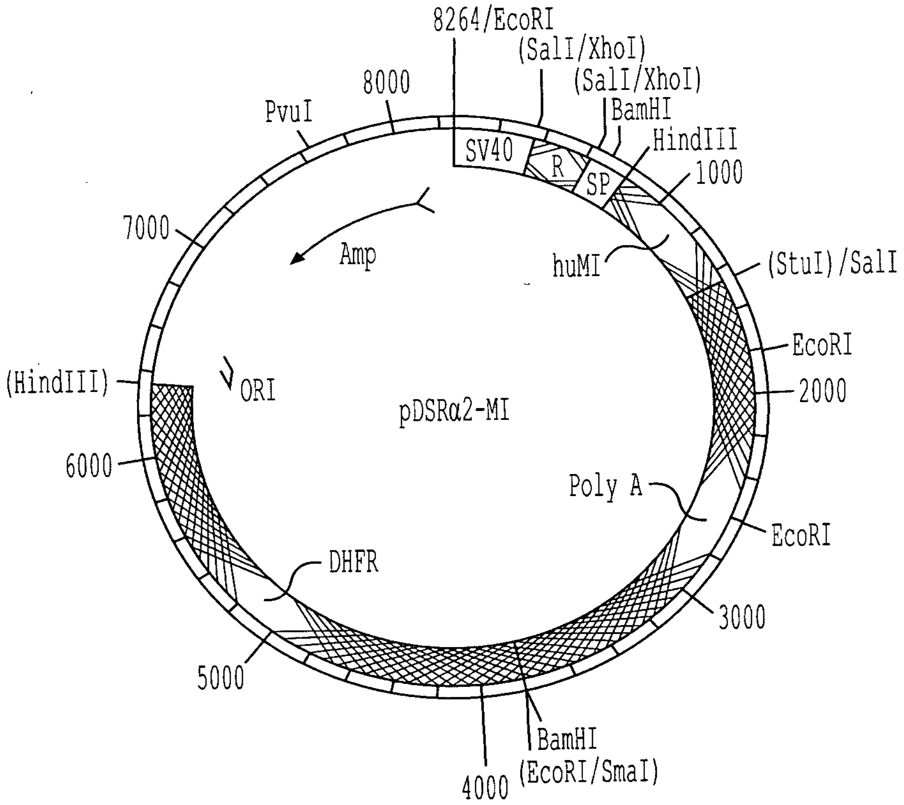
8264/EcoRI
(SalI/XhoI)
(SalI/XhoI)
BamHI
HindIII
1000
PvuI
8000
SV40
R
SP
7000
Amp
huMI
(StuI)/SalI
EcoRI
(HindIII)
ORI
pDSRα2-MI
2000
6000
Poly A
EcoRI
DHFR
3000
5000
BamHI
(EcoRI/SmaI)
4000

FIG. 12

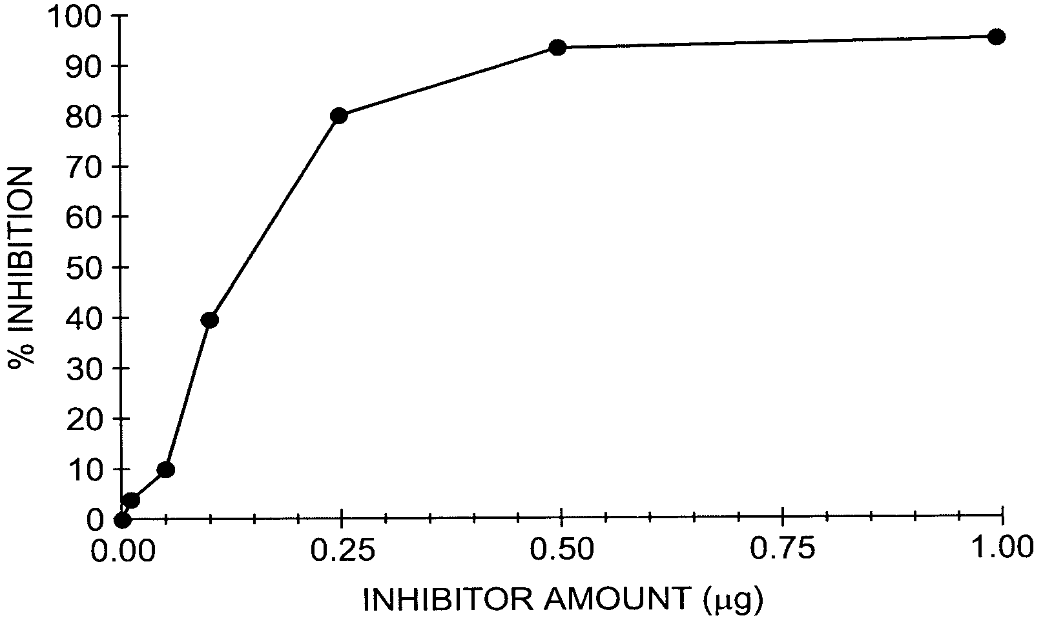

FIG. 15A

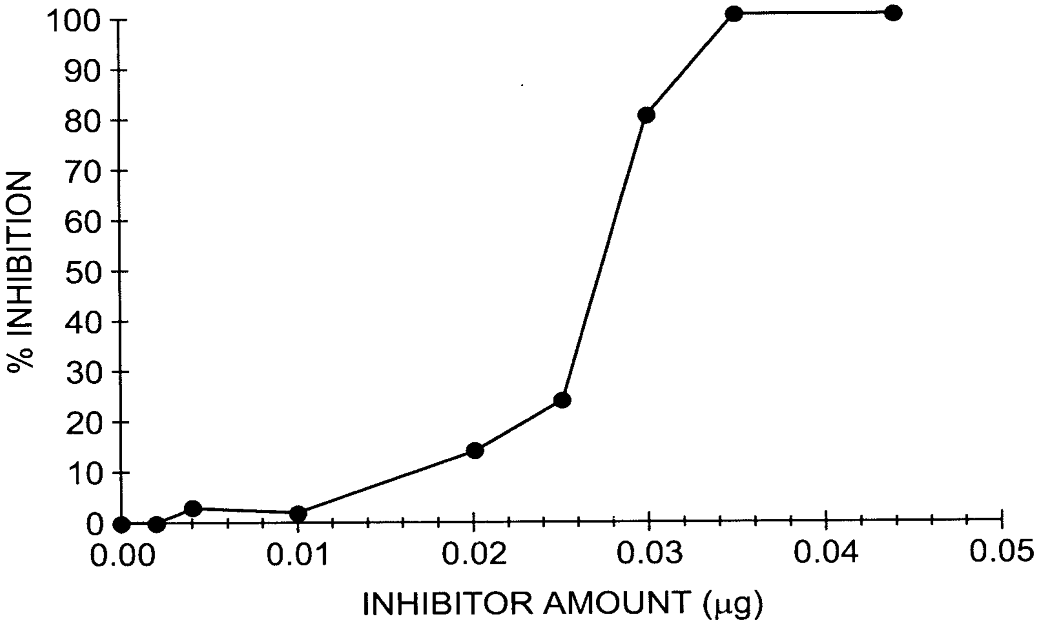

FIG. 15B

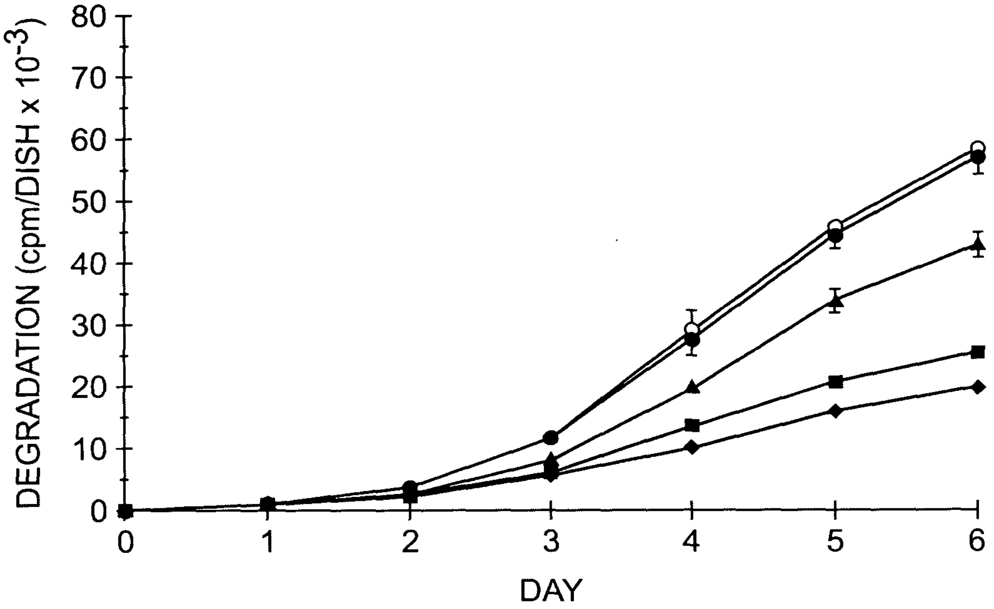
DEGRADATION (cpm/DISH x 10^{-3})
0
10
20
30
40
50
60
70
80
0
1
2
3
4
5
6
DAY

FIG. 16

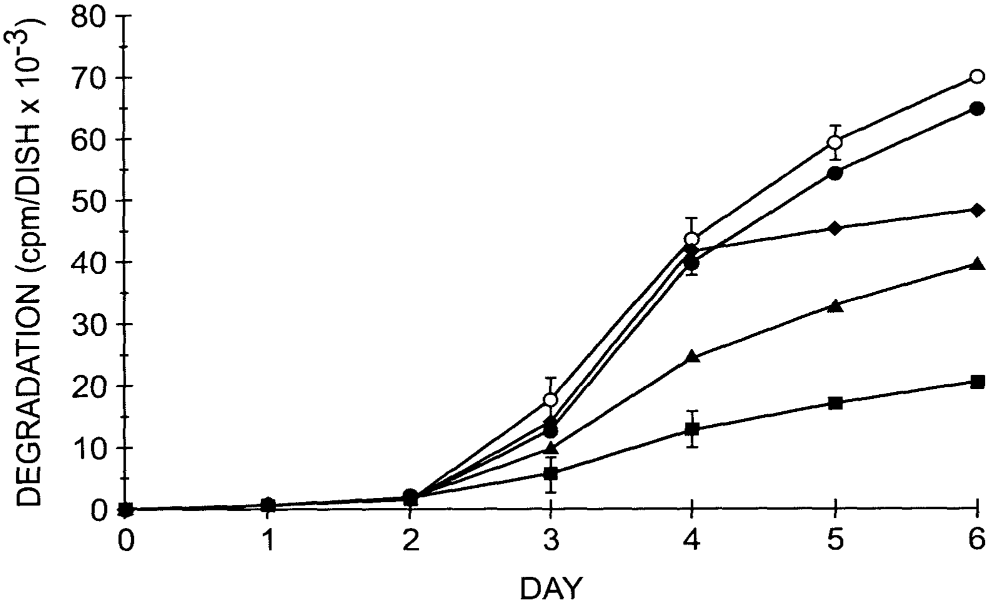
DEGRADATION (cpm/DISH x 10^{-3})
0
10
20
30
40
50
60
70
80
0
1
2
3
4
5
6
DAY

FIG. 17

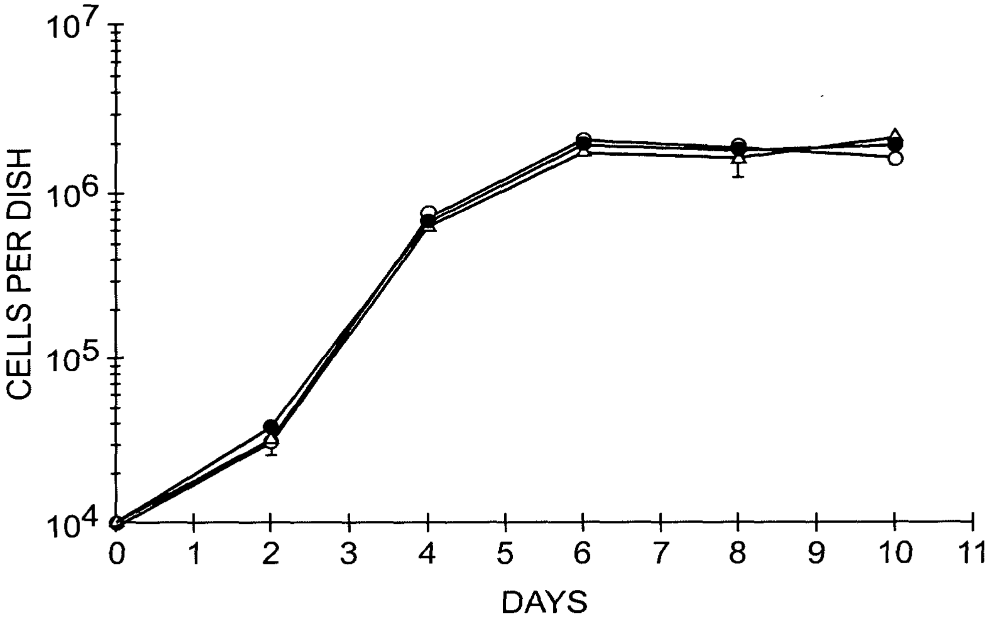

FIG. 18A

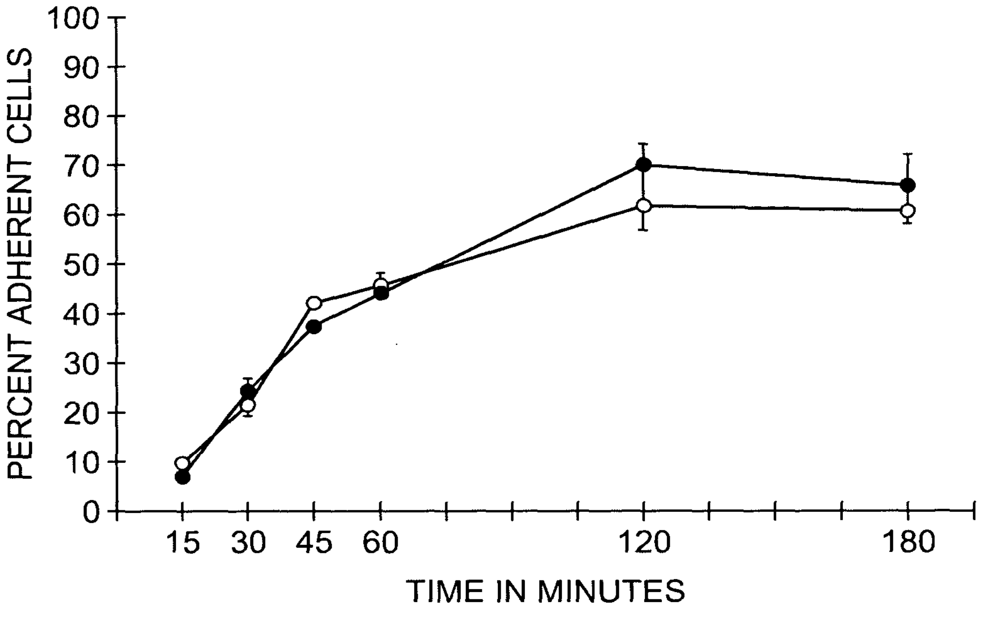

FIG. 18B

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FIG. 5A

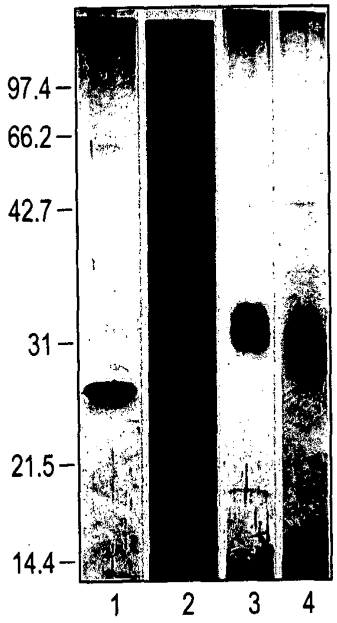
97.4
66.2
42.7
31
21.5
14.4
1
2
3
4

FIG. 5B

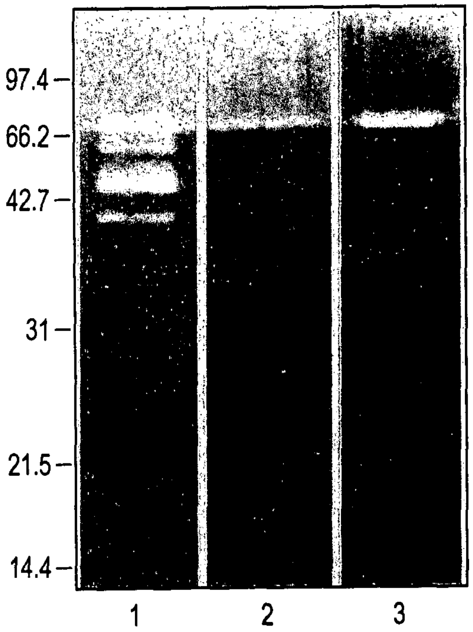
97.4
66.2
42.7
31
21.5
14.4
1
2
3

FIG. 5C

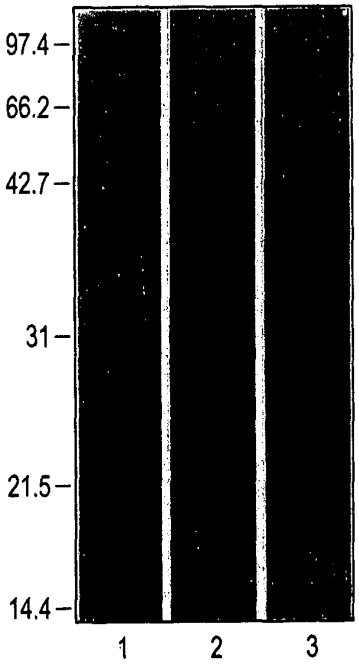
97.4
66.2
42.7
31
21.5
14.4
1
2
3

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FIG. 14

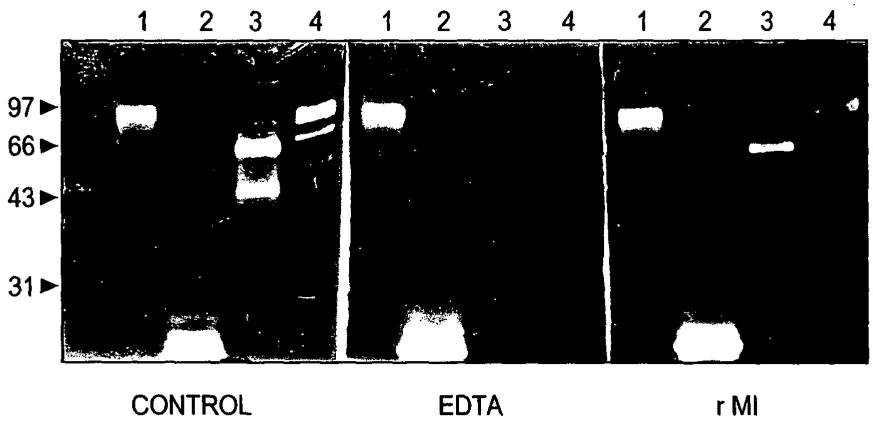
1
2
3
4
1
2
3
4
1
2
3
4
97
66
43
31
CONTROL
EDTA
r MI

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FIG. 13

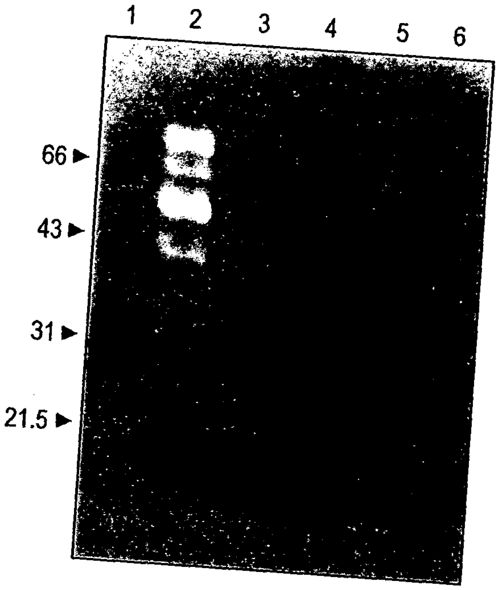
1
2
3
4
5
6
66
43
31
21.5

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FIG. 7

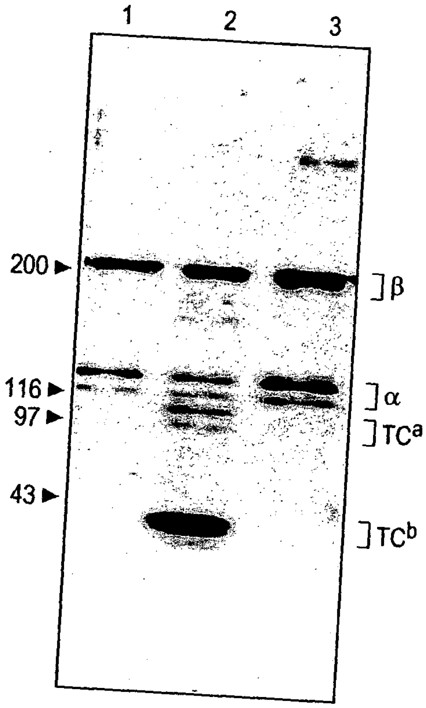
1
2
3
200
116
97
43
β
α
TCa
TCb

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FIG. 6

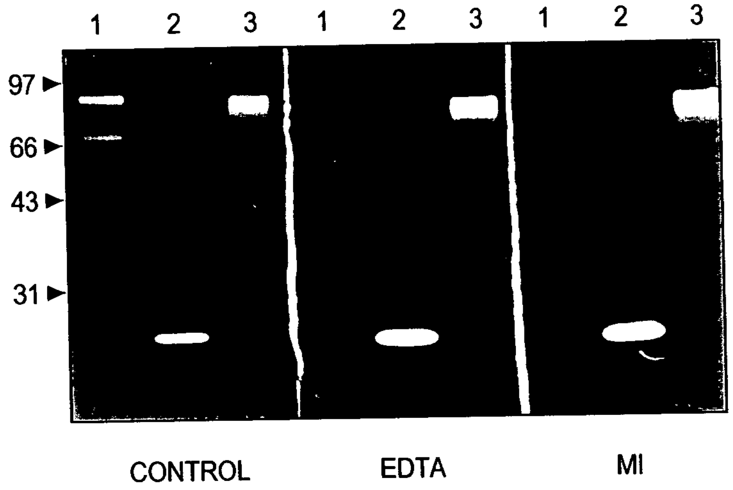
1
2
3
1
2
3
1
2
3
97
66
43
31
CONTROL
EDTA
MI

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FIG. 19A

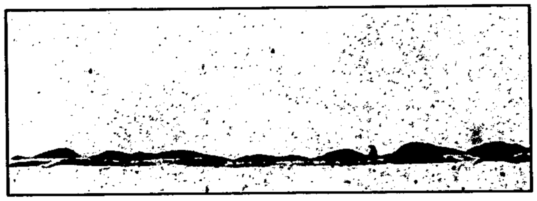
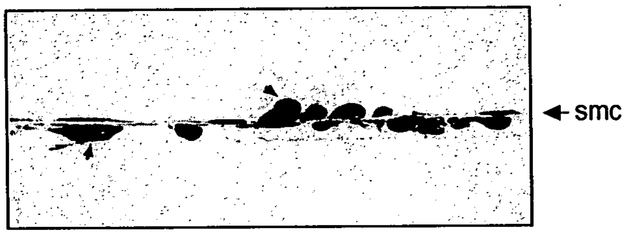
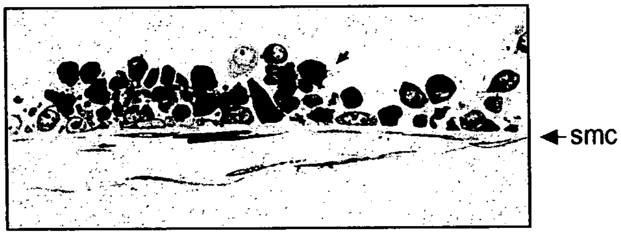


FIG. 19B



FIG. 19C